

INSTALLATION INSTRUCTIONS: LO-REZ BR-LS ISOLATORS

(MARINE APPLICATIONS)

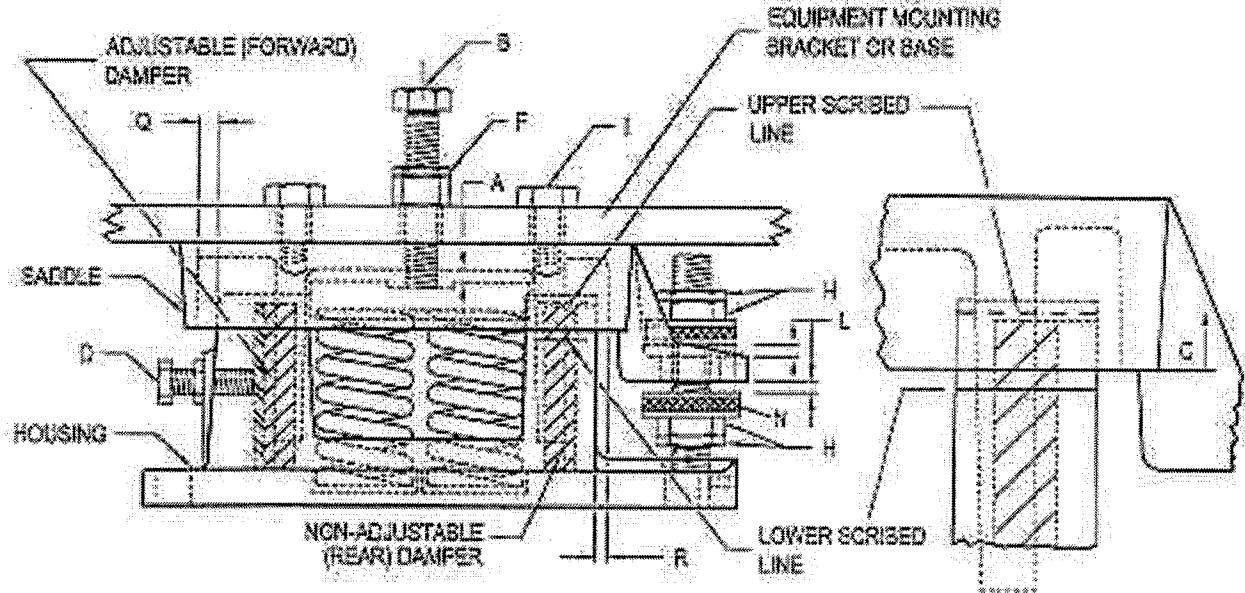


Figure 1

(Use specified size and grade of fasteners, tighten all fasteners to specifications, see Lo-Rez certified drawings)

A. MARINE AUXILIARY ENGINES

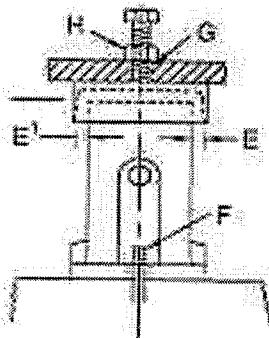
1. Side adjustment 'D' to be loose while isolator is being installed.
2. With rated load on isolator and adjusting bolt 'B' slack (clearance 'A' = 0) lower edge of saddle will come on or near to lower scribed line. The top face of saddle and bottom face of housing should be parallel within $\pm 1/2$ degrees.

If saddle covers lower line then actual isolator loading probably exceeds its rated load. Screwing in bolt 'B' will increase compression of spring(s) and should raise isolator saddle. Saddle should be raised until lower scribed line is visible (and may be raised an additional amount = 'C' for purpose of levelling engine or distribution of load among the various isolators). The load on isolators adjacent to such an overloaded isolator should be given more load by making similar clockwise adjustments to the bolts 'B' on these adjacent isolators.

If isolator saddle uncovers the upper scribed line even when bolt 'B' is slack (clearance 'A' = 0) then isolator is not carrying its share of the load (releasing load on other isolators may remedy this). OR, the load on the isolator in question has been overestimated in the original

selection. Shifting positions of the isolators may correct this by bringing about heavier reactions on the lightly loaded isolators and vice versa. Occasionally an uneven floor will cause over- or under-loading of one or more isolators.

3. When final vertical adjustments have been made and when equal side clearance ($E = E'$ see Figure 2), and end clearance ('R' = Q, see Figure 1) has been provided for saddle, tighten lock nut 'F', secure cap screw(s) 'I' (specified grade and full thread penetration into isolator) and tighten anchoring bolt nuts 'J'. Also, tighten side adjustment 'D' 1/2 turn and lock. If equipment has excessive motion during starting and stopping, tighten 'D' further.
4. Adjust the neoprene bumpers 'N' for 1/16" clearance top and bottom unless otherwise specified, and tighten lock nuts 'H'.



Hole 'G' should be large enough to permit final side adjustment of saddle so clearance $E = E'$ before nut 'F' is tightened.

Figure 2

B. MARINE PROPULSION

1. Side adjustment 'D' to be loose while isolator is being installed.
2. Provide equal side clearance ($E' = E$, see Figure 2) and end clearance ($R = Q$, see Figure 1) by drifting the saddle relative to the housing and + vice versa, provided there is clearance around bolt holes. Lock anchoring bolt nuts 'J'.
3. With the engine at rest, saddles will stand higher (ie. between lower and upper scribed lines) on isolators selected for propulsion engines because allowance has to be made - in the selection of isolators - for the effects of torque reaction in both directions and propeller thrust. Bolts 'B' can be adjusted to align engine with propeller shaft. Do not use 'D' to attain angular alignment in the horizontal plane. The top face of saddle and bottom face of housing should be parallel within $\pm 1/2$ degree.

4. When alignment is attained, tighten 'D' to finger tight plus one turn on all isolators, and lock.
5. Tighten and lock nut 'F' and secure cap screw(s) 'T' (specified grade and full thread penetration into isolator).
6. The allowable vertical motion of the engine on the isolators is controlled by the positions of the top and bottom neoprene bumpers 'N'. The adjustment procedure is different for the following two resilient mounting configurations of marine propulsion engine and gear box.

6.1 Configuration (1): Engine and gear box assembled on common rails (or rigidly close coupled), and the entire assembly mounted on isolators.

The propulsion system must be operated at both full ahead and full astern power to adjust the neoprene bumpers 'N' and tighten lock nuts 'H'. Under full ahead torque one side of engine lowers and the opposite will rise. While this is occurring the bottom bumpers 'N' on the side of engine which drops and the top bumpers 'N' on the side of engine which rises may be adjusted to a clearance of 1/32" from maximum full torque deflection of saddle brackets. Tighten lock nuts 'H'. Repeat same procedure under full astern power.

6.2 Configuration (2): Engine mounted on isolators and flexibly coupled to remote 'hard-mounted' gear box.

At full torque one side of the engine lowers and the opposite side rises. Note that the direction of engine movement is the same for both ahead and astern power. Position of half of all the neoprene bumpers 'N' are set while the engine is at full torque and the remaining half at engine idle. The bottom neoprene bumpers on the side of the engine which drops and the top bumpers on the side of the engine which rises are positioned to a clearance of 1/32" from maximum full torque deflection of saddle brackets. Tighten lock nuts 'H'. The remaining neoprene bumpers are set to a clearance of 1/32" at engine idle and lock nuts are tightened.

7. Design flexible pipe connections for $\pm 1/4"$ movement in all directions, especially near engine top.



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